

**Acidity Titration Method****SM 2310 B-1997 (2011)**

*ADDITIONAL QC REQUIREMENTS FOR THIS METHOD: Certified or Accredited laboratories using this method are assessed to applicable requirements of SM 1020 and SM 2020.*

Facility Name: \_\_\_\_\_ VELAP ID \_\_\_\_\_

Assessor Name: \_\_\_\_\_ Analyst Name: \_\_\_\_\_ Inspection Date \_\_\_\_\_

Relevant Aspect of Standards	Method Reference	Y	N	N/A	Comments
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Records Examined: SOP Number/ Revision/ Date \_\_\_\_\_ Analyst: \_\_\_\_\_

Sample ID: \_\_\_\_\_ Date of Sample Preparation: \_\_\_\_\_ Date of Analysis: \_\_\_\_\_

1. Were samples cooled to $\leq 6^{\circ}\text{C}$ and analyzed within 14 days of collection?	40CFR 136.3 Table 11				
2. Were sample bottles filled completely and tightly capped?	1.f				
3. Were all stock and standard solutions and dilution water prepared with distilled or deionized water that has been freshly boiled for 15 minutes and cooled to room temperature? <i>"The final pH of the water should be <math>\geq 6.0</math> and its conductivity should be <math>&lt; 2 \mu\text{mhos/cm}</math>."</i>	3.a				
4. Was a sodium hydroxide titrant prepared to 0.1N and standardized by titrating 40.00 mL of the $\text{KHC}_8\text{H}_4\text{O}_4$ solution to the inflection point, which "should be close to pH 8.7"?	3.c				
5. Was the normality of the sodium hydroxide titrant adjusted to 0.1000N or the measured normality used in further calculations?	3.c				
6. Was a sodium hydroxide titrant prepared to 0.02N and standardized against 15.00mL $\text{KHC}_8\text{H}_4\text{O}_4$ as above?	3.d				
7. If a sample was suspected to contain hydrolysable metals and reduced forms of polyvalent cations, was sample pH adjusted to $< 4$ , sample treated by adding 5 drops of 30% hydrogen peroxide, boiled for 2 to 5 minutes, and cooled?	4.a				
8. Were samples titrated at $25 \pm 5^{\circ}\text{C}$ if automatic compensation was not available?	2.a, 4.b, 4.c.1				
9. For samples with acidity $< 1000 \text{ mg as calcium carbonate/L}$ , did the analyst select a sample volume with less than 50 mg calcium carbonate equivalent alkalinity and titrate with 0.02N NaOH? <i>(A preliminary titration may be needed to determine optimum sample size and/or titrant normality needed.)</i>	1.e				

Notes/ Comments:

Acidity Titration Method SM 2310 B-1997 (2011)					
Relevant Aspect of Standards	Method Reference	Y	N	N/A	Comments
10. For samples with acidity >1000mg as calcium carbonate/L, did the analyst select a sample volume with less than 250 mg calcium carbonate equivalent alkalinity and titrate with 0.1N NaOH?	1.e				
<b>For titration using color change:</b>					
11. Is color change only used for samples which do not contain interfering color or turbidity, or for preliminary titrations to select optimum sample size and/or titrant normality?	2.d				
12. If free residual chlorine was present in samples, was 1 drop of sodium thiosulfate added or free chlorine destroyed with UV radiation?	4.b				
13. Were the samples titrated over a white surface to a persistent color change characteristic of the equivalence point?	4.b				
<b>For potentiometric titration using a curve:</b>					
14. Were samples mixed thoroughly but gently during titration using a magnetic stirrer?	4.c.2				
15. Were samples titrated until a pH of 9 was reached?	4.c.2				
16. Was a smooth titration curve obtained by allowing equilibrium to be reached between successive alkali additions?	4.c.2				
<b>For potentiometric titration to pH 3.7 or 8.3:</b>					
17. Were samples titrated to a pre-selected endpoint without recording intermediate pH values? <input type="checkbox"/> samples containing only carbon dioxide-bicarbonates-carbonates, titrate to pH 8.3 <input type="checkbox"/> more complex mixtures or buffered solutions, titrate to pH 3.7 for "methyl orange acidity" OR pH 8.3 for phenolphthalein or total acidity"	4.d				
<b>For all determinations:</b>					
18. Did reported data include the pH of the endpoint used?	5				
Notes/ Comments:					